Before the Federal Communications Commission:

In the matter of	(	Docket RM-11829
Amending the Amateur Radio Rules to add a	(	
Tyro License Class, structuring part of the 70cm band,	(	
expanding coordinating committee responsibility,	(	
insuring amateur radio as the primary user of 430-440 MHz,	(	
adding scientific research to the explicit purpose of	(	
amateur radio and requiring governments to allow	(	
amateurs reasonable access to government land to build	(	
and maintain Amateur Radio Community Service	(	
(ARCS) radio systems.	(	

Supporting Comments of:
Muscatine County ARES, Louisa County ARES & Muscatine Amateur Radio Club

Introduction

The Muscatine County Amateur Radio Emergency Service (ARES), Louisa County ARES and the Muscatine Amateur Radio Club (MARC) are partners with the ARRL and many of the public safety organizations in South Eastern Iowa. We are part of Iowa ARES District Five. This Muscatine group maintains a 2meter repeater KC0AQS on 146.910MHz – open to all licensed amateurs – and a website at: www.MuscatineARC.org.

On behalf of the Muscatine Amateur Radio Club, Muscatine County ARES and Louisa County ARES, these comments support the ARCS Initiative described in the "Tyro Petition" together with its Addendum spawning RM-11829. Like the Muscatine amateurs we represent, we see the ARCS Initiative as consistent with and dedicated to the "*Basis and purpose"* of the Amateur Radio Service as expressed in Part 97.1. Our members have been part of the consulting group helping formulate the ARCS Initiative.

As our name suggests, we are deeply engaged in emergency radio service as well as community service organizations in this part of Iowa. While our territory is generally bounded on the East by the Mississippi River, we also coordinate our activities with similar groups located in Illinois.

Like many locations along the Mississippi, we have our annual struggle with flooding. And, it is not just the "Big River." Due to the nature of our climate and our geography, other waterways are just as

prone to trouble. Further, mid-continent Summer and Winter storms are an ever-present threat. Consequently, amateur radio is an important part of emergency and community services here in Iowa. Yet, we want to do more. We need to do more. The ARCS Initiative would help us do more.

Comments

Why not add the Tyro entry level license to amateur radio? Why not restrict these tests to reasonable communication skills. New technology can keep the spectrum safe from technical errors. The presumption that a Red Cross or CERT volunteer would need to know any antenna theory before they could press the transmit button toward helping a flood victim, seems absurd. Yet, as we investigated these issues before deciding our opinion, we found many that saw the "technical nuts and bolts" as an entry level criteria because that was the "core" of amateur radio. Also disquieting was the notion that technical testing was a reasonable barrier-to-entry, testing the commitment that should be required to achieve amateur status.

These argument seem like sophistry. While it is inappropriate to lecture the Commission about the *Basis and purpose* of the Amateur Radio Service, we would point out for other readers: Part 97.1 clearly states growth in both communications and technical skills are goals of the Service. One does not preclude the other. One is not more valuable than the other. Nothing prevents an individual from nurturing one aspect while pretermitting the other. The goals of the Service are to increase both the technical and communications aspects of the radio art within amateur radio as a whole. Moreover, increasing trained operators is lifted up specifically.

Using technical prowess to gauge commitment to amateur radio is a troubling attitude. Observations suggest many community service volunteers are people still in their working careers; often early and rearing families. Still, they volunteer selfless time toward helping with their community's emergency needs. To obliquely criticize them for failing to prioritize technical expertise above emergency preparedness and its related communication skills on the basis of some delusional priority ascribed to the Service seems misguided. Moreover, it may rebuff an age group amateur radio badly needs. Get them in. Then, over time, expose them to a broader spectrum of amateur radio. Probably, more of them will advance the technical aspect of the radio art with embrace than rebuff.

The proposed Tyro License seems quite consistent with these goals. It would be issued for use on spectrum that is limited to local propagation. It would only allow the use of commercial radios found to be efficacious by advanced class licensees. It would not allow Tyros to "tinker" with the radio. circuits.

One of the most intriguing aspects of this Petition is *ad hoc trunking* and its *digital group collection.* Why not structure this nearly vacant slice of the international part of our 70cm band for a more spectrum efficient technology? Further, the ability to dynamically reconfigure groups adroitly addresses instant emergency management needs. Such ad hoc trunking allows diverse groups to share our repeaters without perturbing each other with mundane activities. Then, when needed, any collection of the disparate groups can be organized into a new team. This will allow ARES never before realized possibilities.

With modern "smart-radios," these volunteers can become trained communications experts without needing to also be excessively qualified in radio technology before entry. Unlike past technology, smart-radios cannot be moved to unauthorized frequencies. Such radios are much less susceptible to unwanted emissions. In fact, modern smart-radios can even avoid careless interference.

The radio band selected by the ARCS Initiative avoids ionospheric propagation modes that might interfere with communications far beyond the horizon. When mistakes and misconduct do happen, the effect is limited to the local area by the laws of physics. The need to program the licensees call-sign into smart-radios before the radio can transmit, coupled with its automatic digital identification, will discourage mischief.

The channelization suggested by the Initiative allows elegant radio design incorporating digital *ad hoc trunking* and *digital collection* of users into selected groups. Such *ad hoc trunking* with its *digital collection* allows a better way of sharing spectrum. Instead of assigning a channel to a group, a *digital collection* number is assigned. This way, any repeater (any channel) able to cover the needed geography can be used. This design allows several repeaters to be managed as a "*trunking-group*." Then, when all repeaters are busy except one, the system still seems empty to the next user. When compared to the reserved channel coordination now used by amateur radio, a simple Erlang analysis will show the busy-hour traffic capacity is easily tripled. Further, the scheme also offers cost sharing benefits for cooperating amateur radio clubs.

State coordinating committees can strategically locate the seventy repeater channels into trunking groups that can be transparently shared among many groups with diverse missions. To the users, it will seem as if they have their own channel… a channel nearly always ready for their use. This allows for "CQ" type digital collection for persons just wanting to make a contact… a scout troop digital collection for scouts talking to each other… a Habitat for Humanity digital collection for volunteers building homes to "give" away. Users are not aware of the sharing. Most importantly, emergency (MAYDAY) and urgent (PAN) type calls can be isolated and prioritized. The ARCS Initiative with its proposed technology would allow public safety centers to monitor ARCS systems and only hear the priority calls of their choosing. Actually, all users choose what they hear; however, MAYDAY calls are the exception everybody hears.

The *ad hoc trunking* and *digital group collection* technology, including frequency allocation, would be standardized for uniform nation-wide interoperability… even world-wide because of the frequencies selected. Further, the spectrum capacity tripling offered by *ad hoc trunking* is doubled again by the Initiative's narrow-banding. This rule change allows – and even encourages – amateur radio to begin moving to these more spectrum efficient technologies. In other words, "re-farming" our 70cm band. The proposed 2 ¼ MHz wide ARCS Sub-band could carry 130% of the potential traffic of the entire 10 MHz from 440-450 MHz as it is used today. That estimate does not include the vast additional information increase possible using the digital mode ARCS promotes.

The Tyro license coupled with *smart-radio*, *ad hoc trunking* and *digital collection* technology poses virtually no risk to current users, spectrum management or code enforcement. Due to the prevalence of frequency agile radios among the thinly installed base, very few current users of this spectrum will suffer painful disruption. The state coordinating committees will be well able to manage the inevitable migration of existing systems to and from this spectrum. Because of the current "thin use," the Commission could allow several years for completion. Over time, many FM repeaters now occupying 440-450 MHz will move to this ARCS Sub-band; thus, reducing the future interference potential with current primary users (e.g., wind profiling radar) that are likely to become much more common.

Wind profiling radar is most likely to increase deployment in tornado and hurricane zones. This would cause conflict on just the spectrum commonly occupied by amateur 70cm repeaters. Without ARCS,

perhaps, some of these repeaters will be the very ones ARES will need most desperately, as the radar delivers bad news.

The Rendezvous Channel is important to the success of this re-farming technology. The Commission needs to set aside the 439.5000/430.5000 MHz pair for ARCS Sub-band control signals.

The ARCS Initiative allows amateur radio to incorporate responsible community service volunteers into a subculture able to connect and coordinate otherwise disparate groups in times of crisis. Their common bonds will be the charity they brought to amateur radio and communication skills amateur radio helped them add.

The Tyro License coupled with ARCS Architecture will allow amateur radio to recruit youth at a unique developmental age – with little risk. This gets them interested with a successful start in the radio art. Even if it takes half their lifetime for this seed to flower, the investment and risks are low.

Because Interstate 80 bisects our Northern zone, we quickly understand why the Commission requiring reasonable access to highway medians has substantial public benefit. With minuscule FEMA funding, amateur radio could build ARCS systems along all forty-thousand miles of Interstate routes nation-wide. They could buy equipment; we could supply much of the labor and a simple “cookie-cutter” system design. Amateur radio could maintain these systems much as they do now with their thousands of current repeaters. They could link these systems in ways that serve real purpose. Mitigating Winter weather travel is never gone from the Iowa ARES list of issues. Likely, mitigating hurricane evacuation issues are on the Florida ARES list. Both are on FEMA’s list. It is not hard to understand why mountain tops are important to Colorado ARES.

In Iowa, we certainly do not see eager new communication oriented community service recruits as a “dumbing down” threat to amateur radio. The Tyro License brings them into a community with proven ability to train new recruits in the radio art. Our clubs do it now. We are not alone. Virtually all amateur radio clubs have new-recruit (tyro) programs. Virtually all states already have coordinating committees helping repeater trustees manage their systems. They are quite able to manage this small piece of spectrum the Initiative suggests. The result will be the model for community service two-way radio and amateur radio growth. The equipment suppliers will notice. The public will notice. The world will notice.

It is our sincere hope the Commission will change the rules as suggested in the Tyro Petition as amended by the ARCS Initiative. Our clubs have been successful pursuing the radio arts. But we can do much more with the ARCS Initiative..

Respectfully submitted on behalf of the
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Respectfully submitted on behalf of
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